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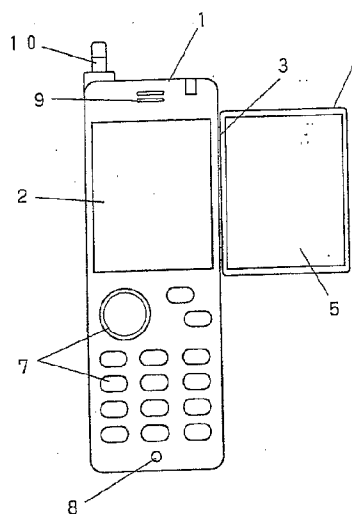
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(54) **PORTABLE TELEPHONE**

(57) A portable telephone has a telephone body (1) with a first liquid crystal display (2) formed on the frontal face of the telephone body, a swingable plate (4) connected by a hinge (3) to one of lateral edges of said body (1), and a second liquid crystal display (5) formed in and disposed on the swingable plate (4). The second crystal display (5) will be at its exposed position to face backwards when the plate (4) is at its closed position folded back in a close contact with the rear face of the telephone body (1), and the swingable plate (4) can pivot forwards so that the second display (5) faces the same direction as the first display (2). The portable telephone of the invention can be used as it is to serve as an ordinary portable telephone, with its main liquid crystal display (2), but its swingable plate folded back on the back of its body may be put into a reversed position so that its supplementary display cooperates with the main display to form an enlarged area for displaying any information of a large volume such as obtained through INTERNET or the like.

Fig. 2



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Description

FIELD OF THE INVENTION

[0001] The present invention relates to a portable telephone having a liquid crystal display device installed therein to display characters and/or images.

BACKGROUND OF THE INVENTION

[0002] Recently, portable telephones have been made smaller and smaller in size to be more convenient to carry. On the other hand, supplementary functions have been added to the normal ones of each portable telephone serving as a terminal output equipment for receiving information through INTERNET and/or from the like data source. Thus, larger liquid crystal devices are required to indicate thereon the information or data of such a larger volume. One of proposals that have been made to meet this requirement is disclosed in the Japanese Patent Early Publication Gazette No. 11-249596. According to this proposal, a lid is attached to the first or ordinary liquid crystal display of a telephone body so as to be opened and closed relative thereto. In this case, a second liquid crystal display is formed in the inner face of such a lid such that when the lid is opened during use of this telephone the first and second displays will serve as portions of an integrated multi-display device.

[0003] It is however to be noted that such a prior proposal is not necessarily be convenient to use. This is because the lid remains closed to hide the first display built in telephone body, unless or until intentionally opened to allow an operator or user to look at the display in normal use of the portable telephone. It also is a problem that such an additional second liquid crystal display is not indispensable but rather useless to normal and ordinary operation of this telephone.

[0004] A primary object of the present invention made to resolve the drawbacks of the prior art is therefore to provide a portable telephone with a second liquid crystal display in addition to a first or ordinary liquid crystal display built in the telephone, such that the first display can play its normal role as it is and as usual. The second display that has been folded back to rear of the telephone body has to be reversed forwards so that the first and second displays form an extended display for indicating the information of a large capacity received through INTERNET or the like.

DISCLOSURE OF THE INVENTION

[0005] In order to achieve this object, the present invention employs the following technical features. A portable telephone provided herein comprises a telephone body 1 having a first liquid crystal display 2 formed on the frontal face of the telephone body, a swingable plate 4 connected by a hinge 3 to one of lateral edges of said body 1, and a second liquid crystal display 5 formed in

and disposed on the swingable plate 4. The second crystal display 5 will be at its exposed position to face backwards when the plate 4 is at its closed position folded back in a close contact with the rear face of the telephone body 1, and the swingable plate 4 is capable of pivoting forwards so that the second display 5 faces the same direction as the first display 2.

[0006] Alternatively, a portable telephone provided herein may comprise as shown in Figs. 4 and 5 a telephone body 1 having a first liquid crystal display 2 formed on the frontal face of the telephone body, swingable plates 4 and 4' respectively connected by hinges 3 and 3' to lateral edges of said body 1, and a second liquid crystal display 5 and a third liquid crystal display 6 that are formed in and disposed on the respective swingable plates 4 and 4'. The second and third displays 5 and 6 will be at their exposed position to face backwards when the plates 4 and 4' are at their closed position folded back closely to the rear face of the telephone body 1, and the swingable plates 4 and 4' are capable of pivoting forwards so that the second and third displays 5 and 6 do face the same direction as the first display 2.

[0007] As seen in Fig. 3, the second or third liquid crystal display 5 or 6 may extend substantially over the full height of telephone body 1.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008]

Fig. 1 is a perspective view of a portable telephone provided in a first embodiment of the present invention;

Fig. 2 is a front elevation of the telephone shown in Fig. 1 and in such a state that its swingable plate has pivoted to its frontal position;

Fig. 3 is a front elevation similar to Fig. 2 but showing the portable telephone in another embodiment; Fig. 4 is a front elevation similar to Fig. 2 but showing the portable telephone in still another embodiment;

Fig. 5 is a bottom view of the telephone shown in Fig. 4 and in such a state that its swingable plate has been folded back;

Fig. 6 is a front elevation similar to Fig. 2 but showing the portable telephone in a further embodiment; and

Fig. 7 is a front elevation similar to Fig. 2 but showing the portable telephone in a still further embodiment.

DETAILED DESCRIPTION OF THE INVENTION

[0009] Now, structural features of the present invention will be described referring to embodiments shown in the drawings, wherein Figs. 1 and 2 illustrate a portable telephone provided in a first embodiment and generally denoted by the reference numeral 1. Similarly to

the ordinary and conventional portable telephones, the telephone body 1 comprises herein a first liquid crystal display 2, a plurality of manipulative buttons 7, a microphone 8, a speaker 9 and an antenna 10 that is disposed on top of said body.

[0010] A hinge 3 secured to one of lateral edges of the telephone body 1 connects thereto the swingable plate 4, permitting it to be folded back in contact with the back of said body 1. At such a closed position of plate 4 held in a close and direct contact with the back of telephone body 1, a second liquid crystal display 5 installed in the plate 4 will be exposed rearwards in the outer surface thereof. The swingable plate 4 can swivel to bring the second display 5 into a reversed position facing in the same direction as the first one 2.

[0011] When using the portable telephone of the invention as an ordinary telephone, an operator or user may leave the swingable plate 4 directly contacting the back of telephone body 1. The first liquid crystal display 2 at such a position of this telephone body will work to indicate a telephone number or the like characters possibly together with any symbols or the like figures. If the first display 2 has to show thereon any information of large volume such as those received through INTERNET or the like data source, then the swingable plate 4 that has been folded back on the said back of telephone body will be operated to take a reversed position as illustrated in Fig. 2. At this position, the second liquid crystal display 5 cooperates with the first one 2 in the telephone body 1 to form an extended image area wide enough to match an integrity of information elements of a large capacity, including the characters and figures.

[0012] Preferably, a simple latch or the like engagement mechanism may be incorporated to stabilize both the folded and extended positions of swingable plate 4, whether in or out of contact with the back of telephone body 1.

[0013] It may be possible to form the second display 5 to extend substantially over the full height of the telephone body 1.

[0014] In still another embodiment of the invention shown in Figs. 4 and 5, both the rear lateral edges of said body 1 have hinges 3 and 3' formed integral therewith. These hinges 3 and 3' connect two swingable plates 4 and 4' to the telephone body 1 so as to permit them to be folded into contact with the back of said body. At such a closed position of plates 4 and 4' held in contact with the back of telephone body 1, the second liquid crystal display 5 and a third one 6 installed in these plates will be exposed rearwards in the outer surfaces thereof. Similarly to the embodiment described above, the swingable plate 4 and 4' can also swivel to bring the second and third displays 5 and 6 into a reversed position facing the same direction in which the first one 2 does face. At this position, the second and third liquid crystal displays 5 and 6 cooperates with the first one 2 in the telephone body 1 in such a fashion that a much bigger extended image area will be provided.

[0015] A twice-folded portable telephone may also be provided in a further embodiment as shown in Fig. 6. In this case, a main part 1a with manipulative buttons 7 and a panel part 1b with the liquid crystal display 2 do constitute a telephone body 1. A transverse hinge 11 enables the main part 1a to be folded onto the panel part 1b, and similarly to the first embodiment a swingable plate 4 with the second display 5 will pivot around the hinge 3 so as to normally contact the back of the panel part 1b of said body 1. Alternatively, this plate 4 may be secured to the main part 1a of said telephone body, likewise contacting the back of this part 1a normally.

[0016] Also in a still further embodiment shown in Fig. 7, the swingable plate 4 with the second display 5 has a cover plate 12 connected thereto by a longitudinal hinge 14. This hinge 14 makes it possible for the cover plate 12 to rotate relative to the second display 5, hiding or revealing it, and an additional liquid crystal display 13 is formed in the inner surface of such a cover plate 12. The additional display 13 can also swivel to face the same direction as the second one 5 on said swingable plate 4.

[0017] Some representative embodiments are described above, although they may be modified in varied manners insofar as any similar constituent elements or parts are employed to achieve the object of invention and to afford the same effects and advantages as noted below.

[0018] In summary, the portable telephone of the invention can be used as it is to serve as an ordinary portable telephone, with its main liquid crystal display giving images of a telephone number or the like characters as well as any figurative images. Its swingable plate folded back on the back of its body may be put into a reversed position so that its supplementary display cooperates with the main display to form an advantageous enlarged area for simultaneously displaying any information of a large volume.

Claims

1. A portable telephone comprising: a telephone body (1) having a first liquid crystal display (2) formed on the frontal face of the telephone body, a swingable plate (4) connected by a hinge (3) to one of lateral edges of said body (1), and a second liquid crystal display (5) formed in and disposed on the swingable plate (4), wherein the second crystal display (5) will be at its exposed position to face backwards when the plate (4) is at its closed position folded back in a close contact with the rear face of the telephone body (1), and the swingable plate (4) is capable of pivoting forwards so that the second display (5) faces the same direction as the first display (2).
2. A portable telephone comprising: a telephone body (1) having a first liquid crystal display (2) formed on

the frontal face of the telephone body, swingable plates (4) and (4') respectively connected by hinges (3) and (3') to lateral edges of said body (1), and a second liquid crystal display (5) and a third liquid crystal display (6) that are formed in and disposed on the respective swingable plates (4) and (4'), wherein the second and third displays (5) and (6) will be at their exposed position to face backwards when the plates (4) and (4') are at their closed position folded back closely to the rear face of the telephone body (1), and the swingable plates (4) and (4') are capable of pivoting forwards so that the second and third displays (5) and (6) do face the same direction as the first display (2).

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Fig. 1

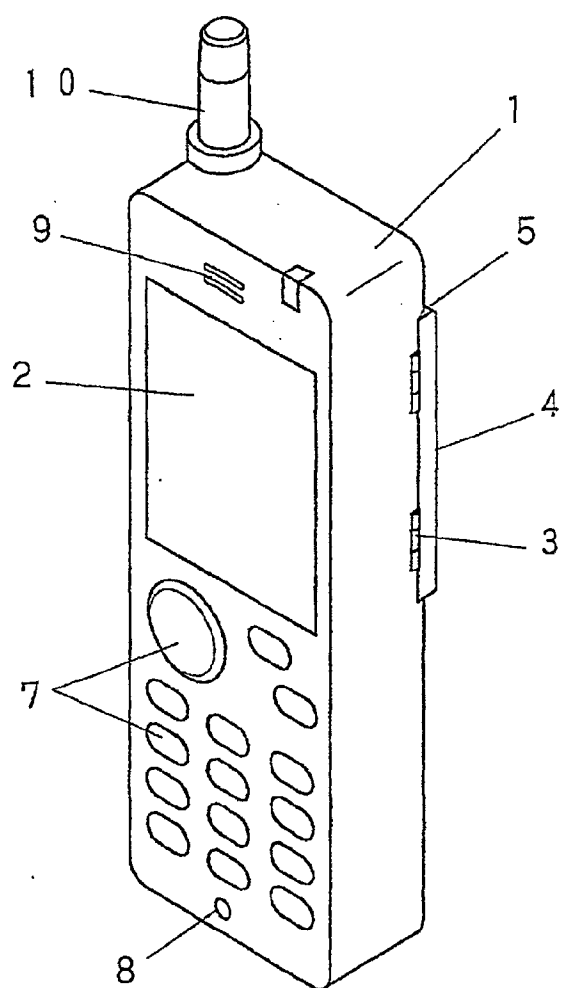


Fig. 2

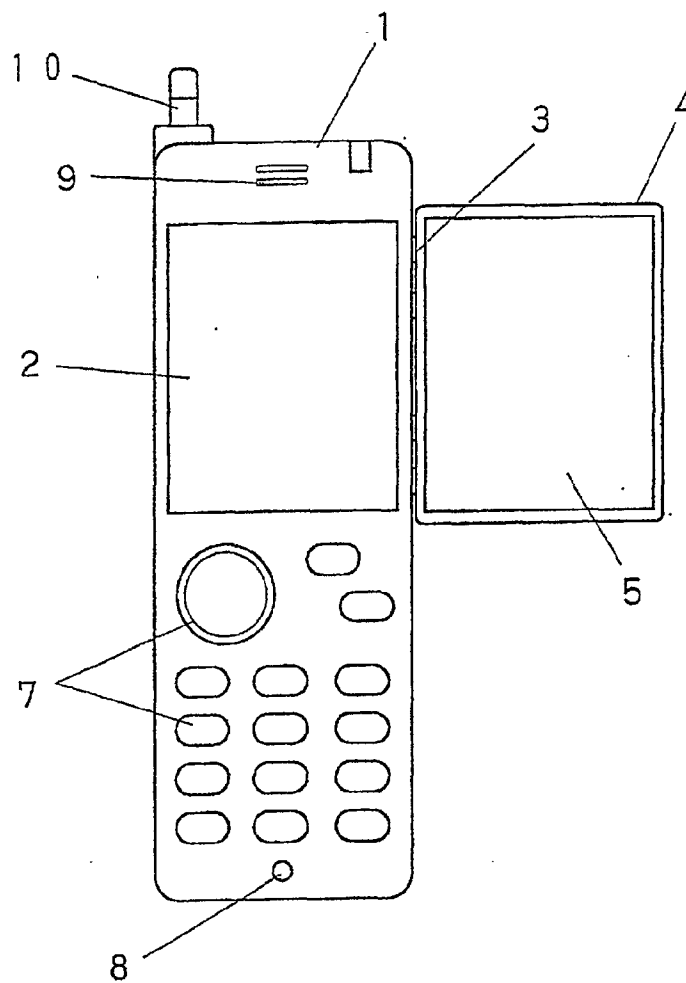


Fig. 3

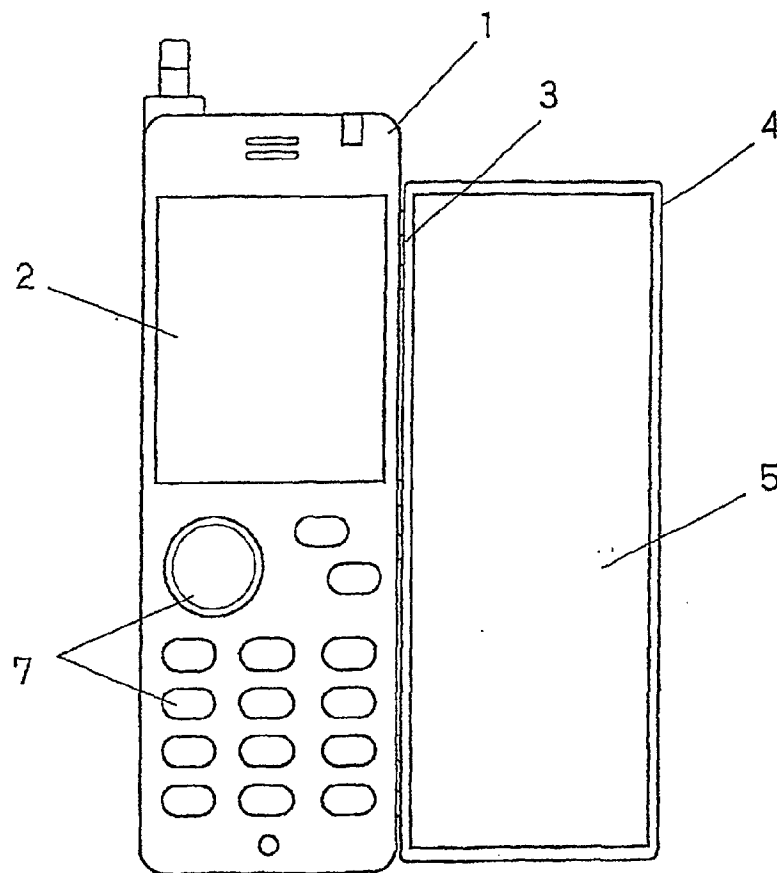


Fig. 4

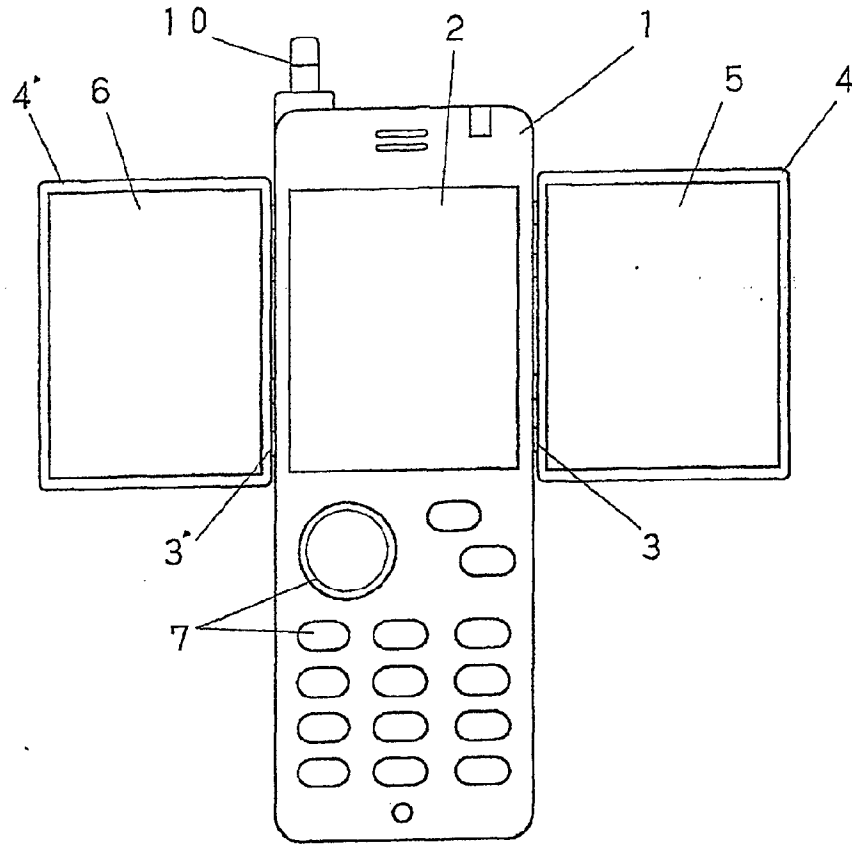


Fig. 5

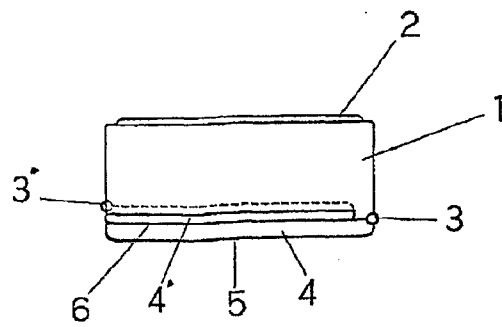


Fig. 6

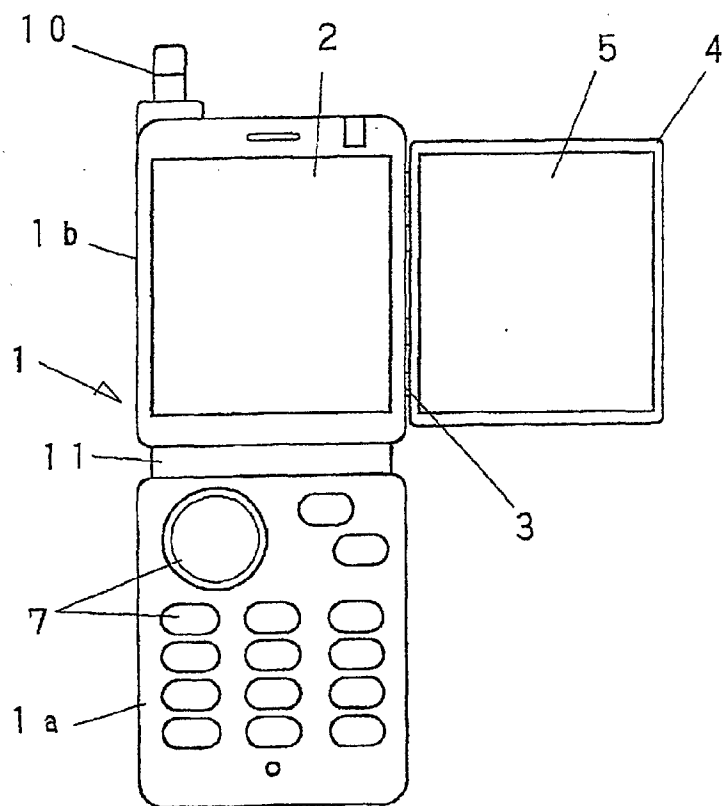
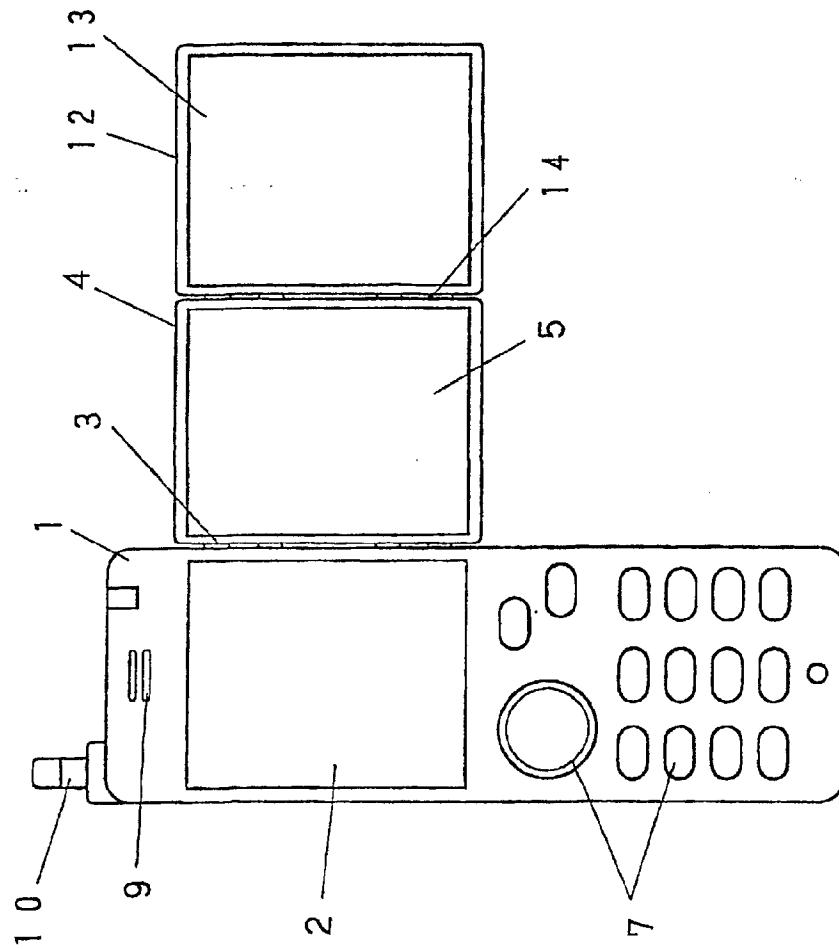


Fig. 7



INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP01/08662

A. CLASSIFICATION OF SUBJECT MATTER Int.Cl ⁷ H04M1/02		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) Int.Cl ⁷ H04M1/02-1/23		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Jitsuyo Shinan Koho 1922-1996 Toroku Jitsuyo Shinan Koho 1994-2001 Kokai Jitsuyo Shinan Koho 1971-2001 Jitsuyo Shinan Toroku Koho 1996-2001		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 2000-184026 A (Samsung SDI Co., Ltd.),	1
Y	30 June, 2000 (30.06.00), Par. Nos. [0044]; Figs. 1, 2, 6, 9 to 11 & CN 1251245 A & KR 2000039481 A	2
X	JP 10-319879 A (Masanobu KUJIRADA),	1
Y	04 December, 1998 (04.12.98), Par. No. [0010]; Figs. 1 to 19 (Family: none)	2
Y	JP 1-282587 A (Kimiko Ikegami), 14 November, 1989 (14.11.89), page 1, left column, lines 4 to 6; Fig. 8 (Family: none)	2
A	EP 924915 A (Nokia Mobile Phones, Ltd.), 23 June, 1999 (23.06.99), Full text; Figs. 1 to 4 & FI 9704347 A & US 2001/012769 A & JP 11-331330 A	1, 2
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
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Date of the actual completion of the international search 20 December, 2001 (20.12.01)		Date of mailing of the international search report 15 January, 2002 (15.01.02)
Name and mailing address of the ISA/ Japanese Patent Office		Authorized officer
Facsimile No.		Telephone No.

Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP01/08662

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 2328343 A (NEC Corporation), 17 February, 1999 (17.02.99), Full text; Figs. 4 to 7 & US 2001/003707 A & JP 11-068896	1, 2

Form PCT/ISA/210 (continuation of second sheet) (July 1992)